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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,986	02/14/2002	Klaus H. Oehr	2296-100	4971

7590 03/16/2004  
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CANADA

EXAMINER

LANGEL, WAYNE A

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



**UNITED STATES DEPARTMENT OF COMMERCE  
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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT

PAPER NUMBER

DATE MAILED:

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

☐ This application has been examined ☒ Responsive to communication filed on 1-27-04 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s),        days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

**Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited by Examiner, PTO-892.        | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.             | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152.       |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____   |

**Part II SUMMARY OF ACTION**

1. ☒ Claims 1-19 are pending in the application.

Of the above, claims \_\_\_\_\_ are withdrawn from consideration.

2. ☐ Claims \_\_\_\_\_ have been cancelled.

3. ☐ Claims \_\_\_\_\_ are allowed.

4. ☒ Claims 1-19 are rejected.

5. ☐ Claims \_\_\_\_\_ are objected to.

6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_, Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

Claims 2-7 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation of "one of . . ." in claim 2 is improper Markush terminology.

Claims 1-19 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no "description support" in the original specification for the flue gas having a temperature in excess of 100°C or in excess of 127°C when employing molecular halogen as the member which is injected into the flue gas. Applicant's argument, that in order to define an operative claim it is necessary for the temperature to be at least 100°C for any of the halogen precursors to decompose into molecular halogen such as chlorine, is not convincing, since applicant's claims do not require that a halogen precursor be injected into the flue gas, but rather embrace a situation wherein the halogen itself, such as molecular chlorine, is injected into the flue gas. There is no "description support" in the original specification for employing a flue gas having a temperature in excess of 100°C when employing

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molecular halogen as the member which is injected into the flue gas.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this

Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the article by Chun Wai Lee in view of the article by Galbreath et al., for the reasons given in the last Office action. Applicant's argument, that Galbreath et al. state that test results are inconclusive for determining whether the apparent formation of mercury chloride involved hydrogen chloride or chlorine as the mercury reactant, is not convincing, since such statement in Galbreath et al. would invite one of ordinary skill in the art to experiment to determine whether the formation of mercury chloride involved chlorine as the mercury reactant. Obviousness would not require absolute predictability as to whether the apparent formation of mercury chloride would involve hydrogen chloride or chlorine as the mercury reactant in the

process of Galbreath et al. Moreover, one of ordinary skill in the art would expect that the formation of mercury chloride in the process of Galbreath et al. would involve chlorine as the mercury reactant, since Lee discloses the reaction between elemental mercury with chlorine in the gas phase, and discloses that such reaction resulted in the formation of mercury chloride.

(See the Abstract of Lee.) Applicant's argument, that it is obvious that Galbreath et al. had no appreciation of the fact that the flue gas composition included alkaline particles because hydrogen chloride is an acid which destroys alkaline particles, is not convincing, since it is apparent from the paragraph bridging pages 221 and 222 of Lee et al. that the flue gas contains alkaline particles, since such disclosure shows that calcium oxide and aluminum oxide are present in the flyash particles. The flyash particles themselves in the process of Lee et al. would constitute "alkaline solid particles" as recited in applicant's claims. Such alkaline solid particles would not be destroyed in the process of Lee et al., since Lee et al. employ elemental fluorine as the chlorinating agent. Galbreath et al. is relied upon merely to show the obviousness of employing a flue gas having a temperature in excess of 100°C. Applicant's argument, that both Lee and Galbreath are experts in the field of coal combustion and the treatment of flue gases, and yet even two

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experts both familiar with the work of the other did not think of using alkaline particles as the adsorption site for mercury chloride, is not convincing, since Lee et al. disclose the presence of alkaline particles in the flue gas. Applicant's argument, that for bag houses, the flue gas temperature just before the particulate collection device must be greater than 100°C to capture particulate solids, is not convincing, since there is no evidence on record to support such contention. In any event, claims 1-13 and 15-19 do not require that the particulate collection device be a bag house. Accordingly the injection of chlorine at 40°C, as disclosed by Lee et al., would not be irrelevant to a system using particulate collection devices to filter out the particles.

Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED

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STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (571) 272-1353. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (571) 272-1358. The fax phone number for this Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or public PAIR. Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free).

WAL:cdc

March 12, 2004

WAYNE A. LANGE  
PRIMARY EXAMINER